

NOTICES

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 DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] this invention relates to the materials for tabular xeransi and its manufacture technique for the restoration in packing of the materials for xeransi which have high adsorptivity ability and high intensity especially a chemical, an instrument, etc.

[0002]

[Description of the Prior Art] The object which packed or covered Plastic solids, such as super-absorbent polymers, such as silica gel, a calcium chloride, sulfuric-anhydride calcium, an activated alumina, a zeolite, or a cellulose, with paper, cloth, the nonwoven fabric, the resin sheet, etc. as a drying agent in the sealing packing which had the contact from the open air severed is used, and among **, in order to obtain low humidity, the zeolite is used abundantly from the performance side.

[0003] If zeolite powder is independent, it is difficult to fabricate, and generally various kinds of binders are used. For example, adding the activated alumina of 30 - 95 weight section to the zeolite powder 100 weight section is proposed by adding clay minerals, such as a bentonite, to JP,33-9872,B, and carrying out after [knead] extrusion molding to water, adding alkali silicate to JP,38-18824,B, making JP,42-90,B add and sinter a metal, JP,49-67895,A, and JP,50-141593,A.

[0004] Such techniques can be applied when fabricating a pellet by the rolling granulation or extrusion molding. Thus, it is well-known to pack the obtained pellet with the material of moisture permeability, and to consider as the materials for xeransi. On the other hand, as materials for xeransi used for the small box for packing etc., tabular is liked from the relation of restoration space. It is indicated by JP,50-40494,A, JP,55-104913,A, JP,61-155216,A, and JP,2-290220,A that a tabular or pillar-shaped Plastic solid can be manufactured as a binder using the quality of a clay mineral. Although the gestalt is not limited, the extrusion method of the matter containing a rehydration nature alumina and a zeolite is indicated by JP,55-162342,A.

[0005]

[Problem(s) to be Solved by the Invention] However, when a clay mineral is used as a binder, since a clay mineral has only few adsorption capacities, it is not enough as materials for xeransi as which high adsorptivity ability is required. Moreover, it is not suitable for the process being complicated and obtaining a tabular Plastic solid although the technique of forming into an after [molding] zeolite is excellent in adsorptivity ability.

[0006] Although it is convenient since the rehydration nature alumina itself has adsorptivity ability in making a rehydration nature alumina into a binder in the process of a tabular Plastic solid, there are the following faults in well-known technique conventionally.

1) The tabular Plastic solid of high intensity which what only mixed zeolite powder and rehydration nature alumina powder has a bad moldability, and has firmness is not obtained.

2) By the rolling granulation method, molding of a tabular article is impossible.

3) Curve, when thickness fabricates a thin tabular article by extrusion molding compared with width of face, and configuration change of torsion etc. sets and is not desirable.

4) Zeolite powder and a rehydration nature alumina are mixed, and dry and press after the granulation, in calcinating subsequently, a crack occurs at the time of baking, the yield is bad and a productivity falls.

In view of the bottom of such a situation, this invention person etc. was excellent in the adsorption capacity, and as a result of a crack's etc. repeating a research zealously that it is few and the tabular drying agent excellent in firmness should be obtained, it came to complete this invention.

[0007]

[Means for Solving the Problem] Namely, this invention is to offer the materials for xeransi which come to cover with the sheet of moisture permeability the Plastic solid pressed and obtained after adding and carrying out the granulation of the rehydration nature alumina 1 - the 30 weight section to the zeolite powder 100 weight section. Furthermore, it sets to the technique of obtaining the materials for xeransi which come to cover with the sheet of moisture permeability the Plastic solid which pressed, calcinated and obtained zeolite powder. It is in offering the manufacture technique of the materials for xeransi characterized by calcinating this Plastic solid at 200-600 degrees C, after calcinating at 200-600 degrees C after adding and carrying out the granulation of the rehydration nature alumina 1 - the 30 weight section to the zeolite powder 100 weight section, and pressing subsequently.

[0008] Hereafter, this invention is explained in detail. The main raw materials used for this invention are zeolite powder and rehydration nature alumina powder. Although it will not be restricted especially if excelled in a hygroscopicity as zeolite powder, it is usually Na, calcium, and K with a main particle size of about 1-20 micrometers. 4A type zeolite with the easiest acquisition as commercial elegance is used among A type zeolite which has the cation ion of grade various kinds, and **.

[0009] The transition aluminas, for example, gamma, other than the alpha alumina which pyrolyzed the hydrated alumina with the rehydration nature alumina in this invention, Hydrated aluminas, such as aluminas industrially obtained from buyer process, such as delta, zeta, eta, theta, kappa, rho-alumina, and amorphous alumina, 3 hydrate, in an about 400-1200-degree C heat gas draft usually. It is the alumina which has about 0.5 - 15% of the weight of the loss on ignition which can be obtained and in which a rehydration is possible by making it contact for to [1/several] 10 seconds.

[0010] 1 - 30 weight section is suitable for the addition of the rehydration nature alumina to zeolite powder to the zeolite powder 100 weight section. The intensity of the granulatio obtained if there are few additions of a rehydration nature alumina than the above-mentioned domain cannot bear the handling to molding weakly. In exceeding the another side 30 weight section, an intensity becomes large too much, the collapsibility at the time of compression molding falls, and the influence which is not desirable comes out about the configuration and intensity of Plastic solid.

[0011] Although it is not helpful as a binder after tabular molding if they are independent, since organic dispersants, such as organic binders, such as PVA and a methyl cellulose, or a polyacrylic acid, disappear at the time of baking, in order to improve the intensity of granulatio, or since pore is given to a tabular Plastic solid, it is possible to use together with a rehydration nature alumina and to use. It is also possible to add an aluminum hydroxide, a silica sol, a specific silicate, the quality of a clay mineral, etc. in the domain in which adsorptivity ability and an intensity furthermore are not reduced.

[0012] In this invention, it makes it indispensable to fabricate beforehand the molding raw material which consists of zeolite powder and a rehydration nature alumina in the shape of granulatio in case of compression molding. other additives used in case of the granulation a rehydration nature alumina and if needed -- only -- zeolite powder and a dry type -- or wet blending is carried out or an after [mixture] dry grinding is carried out, or after [mixture] wet grinding is carried out and it is used as a granulatio raw material About 1-20 micrometers is suitable for the diameter of a centrole of mixture, and an effect is for grinding in order to make it this domain to raise the intensity of granulatio. When the following granulation process is carried out by dry types, such as a rolling granulation, it is economical to also perform mixture or trituration of this process by the dry type.

[0013] The granulation of raw material powder has the favorable inflow to metal mold, and the effect of crack-initiation prevention of a Plastic solid. As the technique of the granulation, a rolling granulation, a fluidized bed granulation, a spray granulation, etc. can adopt the well-known technique by which the object of an almost globular form configuration is obtained. A rolling granulation method has the advantage in which a productivity is high. Although based also on the thickness of a tabular Plastic solid from a fluid point as particle size of granulatio, it is 20-2000 micrometers. If it is desirable and is required, it is carried out a screen exception. Especially the thing for which the fine-grain fraction is removed is important in respect of the inflow nature to metal mold. Next, granulatio usually ripes about 1 hour or more at about 20-150 degrees C under the steam ambient atmosphere for about 3 hours to about 24 hours for a rehydration. At this time, granulatio is the water of crystallization combined with the zeolite and the rehydration nature alumina about 20 to 30% of the weight among those including 50 - 100% of the weight of moisture.

[0014] the status that the front face got dry when the granulatio after rehydration processing was dried at 100-150 degrees C -- becoming -- compression molding -- the inflow to metal mold does not have a problem in any way -- it carries out and molding is also possible enough However, at the continuing baking process, a crack can generate the Plastic solid obtained using the granulatio which carried out such processing, and cannot use it. In order to prevent a crack initiation, a result satisfactory only by usual carrying out xeransis processing of the granulatio is not obtained, but it is necessary to carry out baking processing at 200-600 degrees C before molding. The moisture after this processing usually becomes 10 or less % of the weight. Although the time when it is required for baking is based on conditions, it is usually about 0.1 - 10 hours. At less than 200 degrees C, water of crystallization does not *** and burning temperature of granulatio cannot prevent a crack initiation. On the other hand, since the adsorptivity ability of a zeolite falls when the burning temperature of granulatio exceeds 600 degrees C, it is not desirable.

[0015] Subsequently to the tabular Plastic solid of a request configuration, compression molding performs the raw material granulatio which mainly consists of zeolite powder and a rehydration nature alumina after calcinating. Compression molding is performed by the die-press technique of well-known piece push or both push. In the case of 1cm - 10cm long, 1cm - 10cm wide, and a tabular article with a thickness of 3mm - 1cm, moulding pressure is usually abbreviation 0.5ton/cm² - abbreviation 2ton/cm², although based also on the configuration of the Plastic solid considered as a request. What is necessary is just a grade.

[0016] Although *** combination of a rehydration nature alumina is partially destroyed in process of compression molding, it remains in micro, and the intensity which can be dealt with and carried out is given, without collapsing the Plastic solid after this fabricating. *** combination of this rehydration nature alumina is advantageous compared with appearing at the low temperature of near 100 degree C by the digestion process, and combination of a clay mineral appearing in the place near sintering temperature. It is possible to add release agents, such as stearin acid, a stearate, and graphite, in case of compression molding.

[0017] Subsequently the Plastic solid obtained by compression molding in this invention is calcinated. Although the Plastic-solid raw material is already activated by baking after granulatio molding, the baking process after this molding is indispensable. In omitting this process, while saving the Plastic solid, many cracks occur. The baking conditions of this process are 200-600 degrees C in temperature, and a firing time is usually 0.1 - 10 hours. In order to make the adsorptivity of a zeolite into the maximum, it is desirable to make either baking of raw material granulatio or baking of a tabular Plastic solid into the domain of 400-600 degrees C.

[0018] Thus, the obtained tabular Plastic solid performs packing after baking. As a charge of packing material, the objects of the well-known quality of the material, such as paper, cloth, a nonwoven fabric, and a resin sheet, can be used. Although especially the packing technique of a tabular Plastic solid is not restricted, enclosure into a bag, the technique of putting or covering a Plastic solid with the charge of packing material, etc. are mentioned. Since the material for these packing is moisture permeability, it needs to save this to an airtight container further.

[0019]

[Effect of the Invention] As explained in full detail above, in case this invention obtains the materials for tabular xeransis which consist of zeolite powder and a rehydration nature alumina, by calcinating all of the Plastic solid after granulatio molding and compression molding on specific baking conditions, it is that which enabled it to obtain the materials for tabular xeransis which were excellent in the adsorption capacity, and had few cracks of a Plastic solid etc. and were excellent in firmness, and the industrial value is size very much.

[0020]

[Example] Although this invention is explained still in detail using an example, this invention does not have the domain hereafter restricted by such example. In addition, in an example, especially, the "section" expresses the "weight section", as long as there is no notice.

[0021] The granulation of the mixed fine particles which mixed the 4A type zeolite powder 100 section of 3micro of the diameters of a centrole of example 1 marketing and the rehydration nature alumina (activated-alumina BK-112, Sumitomo Chemical Co., Ltd. make) 8 section of 12micro of the diameters of a centrole, and were ground in the vibration mill was carried out to about 0.7mm by the tumbling granulator, carrying out the spray of the water, the domain of 14-48 meshes was carried out the screen exception, and the granulatio of this domain was obtained Subsequently, this granulatio was sealed in the about 80-degree C steam ambient atmosphere for 16 hours, the rehydration of the alumina was carried out and it was calcinated at 475 degrees C. Thus, it is prepared granulatio 1000kg/cm² It fabricated with the hydraulic press machine to 30x30x4mm, the temperature up of the five obtained Plastic solids was carried out to it by 100 degrees C/hr with the elevated-temperature dryer, and 400 degrees C was calcinated. There was no crack initiation at the time of baking of a Plastic solid. It packed to the nonwoven fabric made from polypropylene (Kuraray Make) so that it might take out from a dryer and it might not absorb moisture after cooling. Although observed after the one week archive, the crack was not seen at all. The density of a product is 3.0.99g/cm. The amount with a relative humidity of 1% of balanced moisture absorption was 17g per 100g of drying agents.

(1) [0022] Except having used the rehydration nature alumina 30 section for the example 2 zeolite powder 100 section, it was operated like the example 1 and the tabular Plastic solid was obtained. There was no crack initiation at the time of baking. Subsequently, this Plastic solid was packed to the same nonwoven fabric made from polypropylene as an example 1. The density of a product is 3.1.02g/cm. The amount with a relative humidity of 1% of balanced moisture absorption was 15g per 100g of drying agents.

(2) [0023] The tabular Plastic solid was obtained like the example 1 except having made burning temperature of example 3 granulatio into 250 degrees C. There was no crack initiation at the time of baking.

(3) [024] The tabular Plastic solid was obtained like the example except having used the rehydration nature alumina 50 section for the example of comparison 1 zeolite powder 100 section. There were many the friction blemishes and the square chips of a side attachment wall of a Plastic solid notably as compared with an example. The density of a product is 3.1.04g/cm. The amount with a relative humidity of 1% of balanced moisture absorption was 11g per 100g of drying agents.

(4) [0025] The ***** powder of example of comparison 2 example 1 was directly pressed not using the rehydration alumina. The Plastic solid was very brittle. The density of a product is 3.0.93g/cm. The amount with a relative humidity of 1% of balanced moisture absorption was 17g per 100g of drying agents.

[0026] Example of comparison 3 granulatio was not calcinated and the tabular Plastic solid was obtained like the example 1 only except having dried at 100 degrees C instead. The crack occurred in 20% of the whole Plastic solid at the time of baking. About the Plastic solid which a crack did not generate, the density of a product is 3 1.04g/cm. The amount with a relative humidity of 1% of balanced moisture absorption was 17g per 100g of drying agents.

[0027] The tabular Plastic solid was obtained by the same technique as an example 1 except having not calcinated example of comparison 4 tabular mold goods. After having taken out the Plastic solid from the firing furnace and saving it after packing on the 2nd, when it observed, the crack had occurred in all Plastic-solid sample 5 used pieces.

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71
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(54)【発明の名称】 乾燥用資材及びその製造方法

(57)【要約】

【構成】 ゼオライト粉末100重量部に対して再水和性アルミナ1~30重量部を添加し顆粒化した後に圧縮成形して得た成形体を透湿性のシートで被覆してなる乾燥用資材。

【効果】 高吸着能を有する強度に優れた板状乾燥用資材を提供する。

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【特許請求の範囲】

【請求項1】ゼオライト粉末100重量部に対して再水和性アルミナ1～30重量部を添加し顆粒化した後に圧縮成形して得た成形体を透湿性のシートで被覆してなる乾燥用資材。

【請求項2】ゼオライト粉末を圧縮成形し焼成して得た成形体を透湿性のシートで被覆してなる乾燥用資材を得る方法において、ゼオライト粉末100重量部に対して再水和性アルミナ1～30重量部を添加し顆粒化した後、200～600°Cで焼成し、次いで圧縮成形した後、該成形体を200～600°Cで焼成することを特徴とする乾燥用資材の製造方法。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は高吸着性能並びに高強度を有する乾燥用資材、特に薬品、器具等の包装内充填用の板状乾燥用資材およびその製造方法に関する。

【0002】

【従来の技術】外気からの接触を絶たれた密閉包装内の乾燥剤としてはシリカゲル、塩化カルシウム、無水硫酸カルシウム、活性アルミナ、ゼオライト或いはセルロース等の高吸水性高分子等の成形体を紙、布、不織布、樹脂シート等で包装あるいは被覆した物が使用されており、就中、低湿度を得るためにゼオライトが性能面より多用されている。

【0003】ゼオライト粉末は単独では成形が困難であり、一般には各種の結合剤が使用される。例えば、特公昭33-9872号にはペントナイト等の粘土鉱物を添加し水と混練後押出成形すること、特公昭38-18824号にはアルカリ珪酸塩を添加すること、特公昭42-90号には金属を添加し焼結せしめること、特開昭49-67895号および特開昭50-141593号にはゼオライト粉末100重量部に対し30～95重量部の活性アルミナを添加することが提案されている。

【0004】これらの技術は転動造粒あるいは押出成形によりペレットを成形する場合に適用できる。このようにして得たペレットを透湿性の材料で包装し乾燥用資材とすることは公知である。一方、包装用小箱等に使用する乾燥用資材としては充填スペースの関係から板状が好まれる。粘土鉱物を結合剤として使用し板状または柱状の成形体が製造可能であることが特開昭50-40494号、特開昭55-104913号、特開昭61-155216号、特開平2-290220号に開示されている。形態を限定しないが再水和性アルミナとゼオライトを含有する物質の押出成形法が特開昭55-162342号に開示されている。

【0005】

【発明が解決しようとする課題】しかし、粘土鉱物を結合剤として使用した場合、粘土鉱物はわずかな吸着能しか持たないので高吸着性能が要求される乾燥用資材としては十分でない。また成形後ゼオライト化する方法は吸

着性能はすぐれているが、製法が複雑であり、板状成形体を得るのには適していない。

【0006】板状成形体の製法に於いて再水和性アルミナを結合剤とする場合には再水和性アルミナ自身が吸着性能を持つので好都合であるが、従来公知の方法には下記のような欠点がある。

1) ゼオライト粉末と再水和性アルミナ粉末を単に混合したものは成形性が悪く保形性を有する高強度の板状成形体が得られない。

10 2) 転動造粒法では板状品の成形は不可能である。
3) 押出成形により幅に較べ厚さが薄い板状品を成形する場合にはそり、ねじれ等の形状変化がおき好ましくない。

4) ゼオライト粉末と再水和性アルミナを混合し顆粒化後に乾燥して圧縮成形し、次いで焼成する場合には焼成時にクラックが発生し、歩留まりが悪く生産性が低下する。

かかる事情下に鑑み、本発明者等は吸着能に優れ、クラック等が少なく、保形性に優れた板状乾燥剤を得るべく鋭意研究を重ねた結果、本発明を完成するに至った。

【0007】

【課題を解決するための手段】すなわち、本発明はゼオライト粉末100重量部に対して再水和性アルミナ1～30重量部を添加し顆粒化した後に圧縮成形して得た成形体を透湿性のシートで被覆してなる乾燥用資材を提供するにあり、さらには、ゼオライト粉末を圧縮成形し焼成して得た成形体を透湿性のシートで被覆してなる乾燥用資材を得る方法において、ゼオライト粉末100重量部に対して再水和性アルミナ1～30重量部を添加し顆粒化した後、200～600°Cで焼成し、次いで圧縮成形した後、該成形体を200～600°Cで焼成することを特徴とする乾燥用資材の製造方法を提供するにある。

30 【0008】以下、本発明を詳細に説明する。本発明に使用する主要原料はゼオライト粉末と再水和性アルミナ粉末である。ゼオライト粉末としては吸湿能に優れたものであれば特に制限されないが、通常中心粒径約1～20μmのNa、Ca、K等各種のカチオンイオンを有するA型ゼオライト、就中、市販品として最も入手の容易な4A型ゼオライトが使用される。

40 【0009】本発明に於ける再水和性アルミナとは、アルミナ水和物を熱分解したαアルミナ以外の遷移アルミニウム例えばγ、δ、ζ、η、θ、κ、ρ-アルミニウム及び無定形アルミニウム等、工業的には例えばバイヤー工程から得られるアルミニウム水和物等のアルミニナ水和物を約400～1200°Cの熱ガス気流中に通常、数分の1～10秒接触させることにより得ることができる約0.5～1.5重量%の灼熱減量を有する再水和可能なアルミニウムである。

【0010】ゼオライト粉末に対する再水和性アルミニウムの添加量は、ゼオライト粉末100重量部に対し、1～

40	<p>【說明的結果】以上詳述之太乙火，本說明其性質於 小體未見水和熱力以至火氣，乃為扶養萬物之母，得 乾燥之氣，表面乾燥，火氣升發，此正謂成氣，而水 之得火，則成水氣，此乃水火既濟之象，故謂之太 乙水火既濟。</p>	<p>(0014) 水火既濟的數值 100~150 乙火 乾燥之氣，表面乾燥，火氣升發，此正謂成氣，而水 之得火，則成水氣，此乃水火既濟之象，故謂之太 乙水火既濟。</p>
41	<p>【說明的結果】以上詳述之太乙火，本說明其性質於 小體未見水和熱力以至火氣，乃為扶養萬物之母，得 乾燥之氣，表面乾燥，火氣升發，此正謂成氣，而水 之得火，則成水氣，此乃水火既濟之象，故謂之太 乙水火既濟。</p>	<p>(0014) 水火既濟的數值 100~150 乙火 乾燥之氣，表面乾燥，火氣升發，此正謂成氣，而水 之得火，則成水氣，此乃水火既濟之象，故謂之太 乙水火既濟。</p>
42		

数据被读出时，其值将被写入到与之对应的寄存器中。如果寄存器的值被修改，那么在下次读取时，将读取修改后的值。如果寄存器的值被修改，那么在下次读取时，将读取修改后的值。

【0017】本发明提供的一种小IT-E设备，包括：数据源模块，用于连接IT-E设备与IT-E连接器；显示模块，用于显示数据源模块接收到的数据；控制模块，用于控制显示模块显示数据；以及，连接模块，连接显示模块与控制模块。本发明的显示模块能够根据数据源模块接收到的数据，显示数据，从而能够方便地对IT-E设备进行管理。【0018】本发明还提供了一种IT-E连接器，包括：连接器本体，连接器本体上设置有连接孔；以及，连接线，连接线的一端与连接器本体连接，连接线的另一端与IT-E设备连接。本发明的IT-E连接器能够方便地将IT-E设备与IT-E连接器连接，从而方便地对IT-E设备进行管理。

水和肥力以及土壤的理化性质对土壤形成和肥力有重要影响。土壤的理化性质包括土壤的物理性质、化学性质和生物活性等。土壤的物理性质包括土壤的颗粒组成、土壤的孔隙度、土壤的水分含量、土壤的通气性等。土壤的化学性质包括土壤的pH值、土壤的盐分含量、土壤的有机质含量、土壤的养分含量等。土壤的生物活性包括土壤的微生物活性、土壤的酶活性、土壤的根系活性等。土壤的理化性质和生物活性相互影响，共同决定了土壤的肥力。

（0011）PVA、大糸川乙口大等の有機アミノ酸の水溶性物質で、主としてアミノ酸類は次のように既報の如きで述べられてゐる。

特に断りのない限り"重量部"を表す。

【0021】実施例1

市販の中心粒径3μの4A型ゼオライト粉末100部と、中心粒径12μの再水和性アルミナ（活性アルミナBK-112、住友化学工業株式会社製）8部を混合し振動ミルにて粉碎した混合粉体を、水をスプレーしながら転動造粒機で約0.7mmに造粒し、14~48メッシュの範囲を篩別し該範囲の顆粒を得た。次いでこの顆粒を約80℃の水蒸気雰囲気中に16時間密閉しアルミナを再水和させ、475℃で焼成した。このようにして調製した顆粒を1000kg/cm³で30×30×4mmに油圧プレス機で成形し、得られた成形体5個を高温乾燥機にて100℃/hrで昇温し400℃焼成した。成形体の焼成時のクラック発生はなかった。乾燥機より取り出し冷却後、吸湿しないようにポリプロピレン不織布（株式会社クラレ製）に包装した。1週間保管後観察したが割れはまったく見られなかった。製品の密度は0.99g/cm³で、相対湿度1%での平衡吸湿量は乾燥剤100gあたり17gであった。

【0022】実施例2

ゼオライト粉末100部に再水和性アルミナ30部を使用した以外、実施例1と同様に操作し、板状成形体を得た。焼成時のクラック発生はなかった。次いでこの成形体を実施例1と同じポリプロピレン製不織布に包装した。製品の密度は1.02g/cm³で、相対湿度1%での平衡吸湿量は乾燥剤100gあたり15gであった。

【0023】実施例3

顆粒の焼成温度を250℃とした以外、実施例1と同様に板状成形体を得た。焼成時のクラック発生はなかった。

【0024】比較例1

ゼオライト粉末100部に再水和性アルミナ50部を使用した以外、実施例と同様に板状成形体を得た。成形体の側壁の摩擦傷および四角の欠けが実施例と比較して顕著に多かった。製品の密度は1.04g/cm³で、相対湿度1%での平衡吸湿量は乾燥剤100gあたり11gであった。

【0025】比較例2

実施例1のゼオライ粉末を再水和アルミナを用いず、直接圧縮成形した。成形体は極めて脆いものであった。製品の密度は0.93g/cm³で、相対湿度1%での平衡吸湿量は乾燥剤100gあたり17gであった。

【0026】比較例3

顆粒の焼成を行わず、代わりに100℃で乾燥のみを行った以外、実施例1と同様に板状成形体を得た。焼成時に全体の20%の成形体にクラックが発生した。クラックの発生しなかった成形体については、製品の密度は1.04g/cm³で、相対湿度1%での平衡吸湿量は乾燥剤100gあたり17gであった。

【0027】比較例4

板状成形品の焼成を行わなかった以外は実施例1と同様の方法で板状成形体を得た。成形体を焼成炉より取り出し包装後、2日保管した後観察すると、用いた成形体試料5個すべてに割れが発生していた。